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Proposal for HDPC'2006 Poster session

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### RENATER dark fiber "Project Architecture"

*The poster presents the dark fiber "project architecture" deployed by RENATER to support research projects with "high network resources" requirements. We will show maps of the RENATER "standard" and "dark fiber" architectures. Also we will summarize requirements and results for projects currently using the architecture (LHC, Grid5000) or scheduled to use it by mid 2006 (DEISA).*

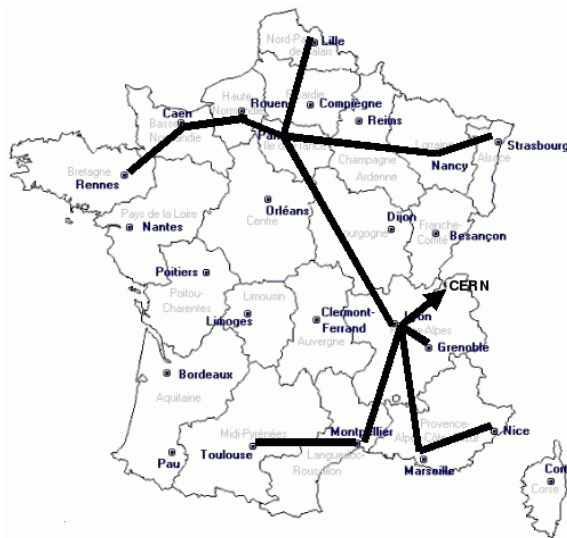
RENATER is the french academic network:

- about 30 POPs (Points of Presence) distributed in France on which are connected metropolitan and regional networks;
- more than 600 sites (universities, research centers, ..) are connected to RENATER;
- standard interconnection through leased lines providing 2,5Gb/s;
- connection to other research networks in Europe (GEANT) , US, ...

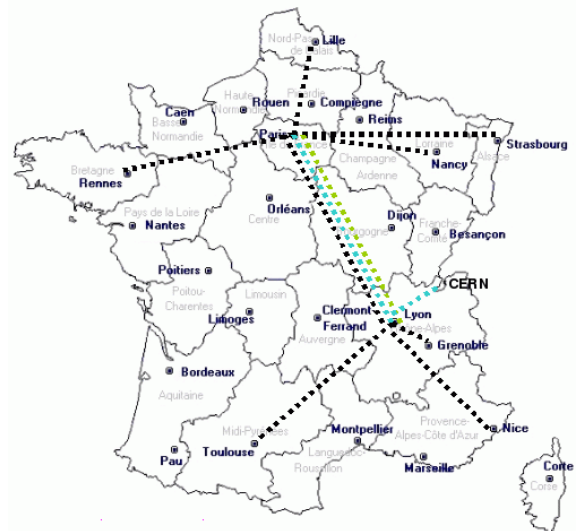
Within the RENATER-4 phase of deployment of the network, a new "dark fiber" infrastructure has been launched to support research projects with "high network resources" requirements. The initial topology interconnects the main POPs in France, the CERN and provides accesses to GEANT. Each link supports up to 8 lambdas (16 for the Paris-Lyon backbone) , each "lambda" allowing 10Gb/s capacity.

The dark fiber is enlightened by RENATER which is now able to provide a Service of "lambda on demand" to carry the traffic generated by these projects.

This is a unique opportunity for french, european -or even worldwide- research projects that can rely on quickly available dedicated high bandwidth ressources for the reasonable cost of "an incremental lambda". Furthermore collaboration with RENATER within those projects is encouraged to work on (e.g) new protocols and services especially in the domain of grid computing.



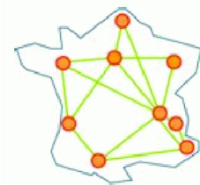
Project infrastructure dark fiber (March 2005)



Services of lambda (March 2005)

Existing projects:

- DEISA will use (mid-2006) a dedicated lambda between the french computing center IDRIS and GEANT II;
- LHC (Large Hydron Collider) for joined projects with IN2P3 in Lyon, CERN in Geneva and interconnection with GEANT II and Fermi Labs in Chicago (US);
- the most significant experiment up to now has been set up for Grid5000 : a research french GRID infrastructure with 5000 Cpu's distributed in 9 sites in France. Here the RENATER project infrastructure will provide 10Gb/s point to point interconnection inside a single VLAN.



The architecture of the RENATER POPs have been modified so that the "project sites" are directly connected to the switches, by-passing the routers which are used for "standard" IP traffic.

